Abstract

Systems and methods for infrared sensing a compound's concentration in aqueous solution are provided. In various non-limiting embodiments, the invention provides infrared sensing of methanol's concentration in aqueous solution in connection with a fuel circulation process for a direct methanol fuel cell. In some embodiments, flow-through infrared sensing technique are provided. In other embodiments, window type infrared sensing techniques are provided. As a result of the infrared sensing, an accurate real-time measurement of the concentration of a compound of interest in aqueous solution is affordably obtained.